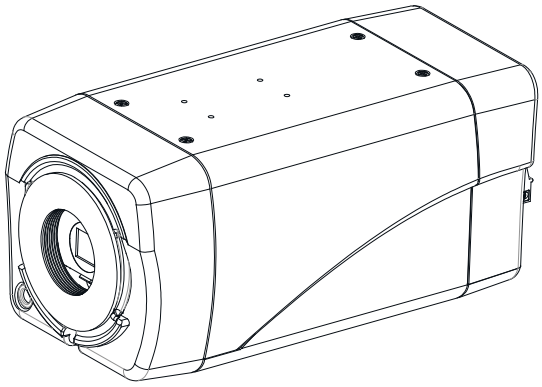
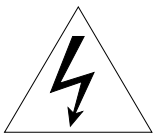


IPN1202HD

Installation Guide

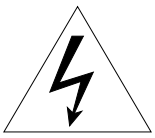
INFORMATION TO USER



CAUTION

RISK OF ELECTRIC SHOCK,
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE THE DEVICE COVER (OR BACK).
CONTACT QUALIFIED SERVICE PERSONNEL FOR INTERNAL PART SERVICES.



This symbol is intended to alert the user the presence of un-insulated “dangerous voltage” within the product’s enclosure, which may be sufficient magnitude to constitute a electric shock risk to persons.

This symbol is intended to alert the user the presence of important operating and maintenance (servicing) instructions within the guide manual

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1. FEATURES

Camera

- Box type full-HD IP camera
- 1/2.7” 1080p CMOS Image Sensor
- 3.1~8 mm, F1.2, F1.2 DC auto iris lens, CS mount

Streaming

- Dual streaming mode
- Burnt-in text support
- Unicast/Multicast support

Video/Audio

- Video compression: H.264/MJPEG, 25/30FPS@1080p(PAL/NTSC)
- Audio compression: G.711(µLaw, aLaw)/PCM
- Analog video out for external monitors
- Video motion detection supported
- Two-way mono audio supported

Network

- RTSP/ HTTP protocol support
- 10/100 Base-T Ethernet

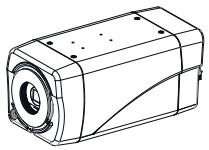
Additional Features

- RS-485 support
- MicroSD card slot support (Local storage)
- PoE support
- Built-in Video Content Analysis
- Burnt-in text support
- SDK (Software Development Kit) support

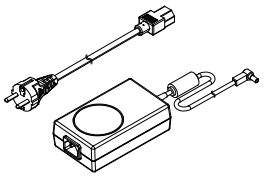
2. PACKAGE CONTENTS

The package contains main camera, DC power adaptor, DC jack cable, camera lens, terminal block, power adaptor jack, screws, mounting adaptor, clamping core, and quick installation guide. Unpack carefully and handle the equipment with care.

Camera

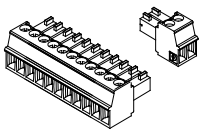


DC power adaptor



Lens

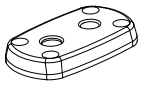
Terminal block



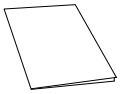
Power adaptor jack

Screws

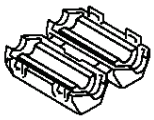
Adaptor for mounting the camera



Quick installation guide



Clamping core
To prevent electromagnetic interference

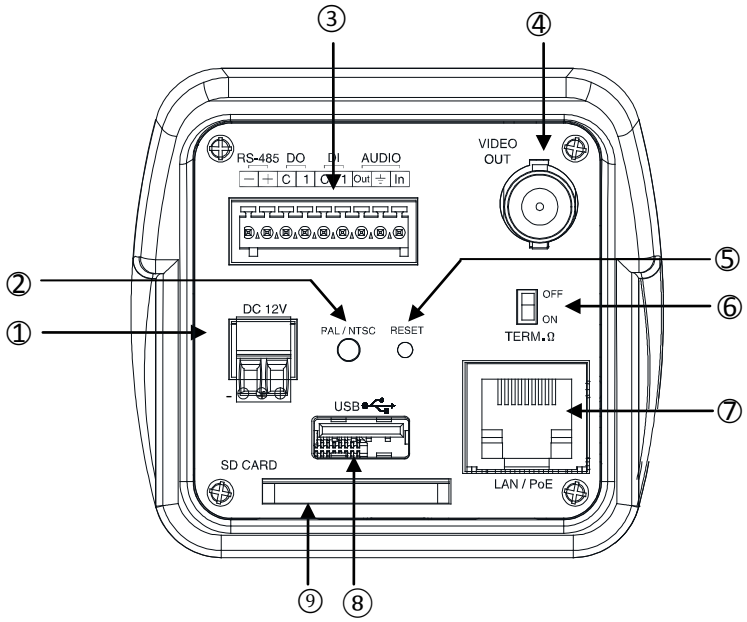


Note

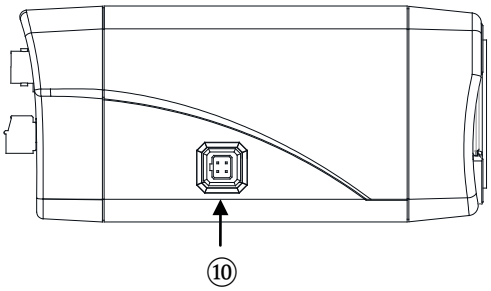
The above contents are subject to change without prior notice.

3. PART NAMES

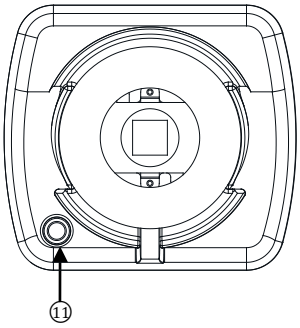
3.1. Rear View



3.2. Side View



3.3. Front View



① Power Adaptor Connect
The camera requires DC 12V for power supply. Refer to the section "*4.3. Connecting Cables*" for more specific information

② PAL/NTSC button
Press the PAL/NTSC button to set video output as PAL or NTSC. The default is no video output. Each time pressing the button cycles through PAL, NTSC, and no video output mode: *No video output -> PAL->NTSC*

③ 11 pin terminal block for D/I, D/O, audio, and serial communication
Refer to the section "*4.3. Connecting Cables*" for more specific information.

④ Analog Video Out Connector
Use BNC cable (not supplied) to connect between the camera and monitor to verify image focuses at the installation site. Users must cycle through button (no video output -> PAL -> NTSC) to select the video output. Once the PAL/NTSC button is pressed, the video displays for 3 minutes before returns back to 'no video output' status.

⑤ Reset Button
Use the reset button to restart or reset the camera back to factory default settings. Refer to the section "**5.3. Reset"** for more specific information.

⑥ RS-485 Termination Switch (120ohm)
Select ON or OFF for RS-485 termination register. The default is off.

⑦ Network Port
Use the RJ45 LAN connector for connecting the camera to network or supplying PoE power.

⑧ USB 2.0 Port
Plug an USB flash drive or wireless LAN device.

⑨ SD Card Slot
Supports memory cards up to 32GB.

⑩ Auto Iris Lens Connector
The 4-pin connector for an auto iris camera lens.

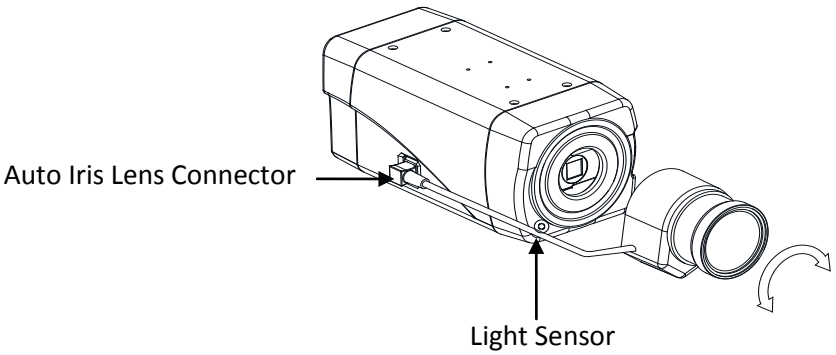
⑪ Light Sensor
The light sensor is used to detect the level of ambient light detect intensity of light. The sensor should not be blocked by cable or any other objects.

4. INSTALLATION

4.1. Installing a Lens

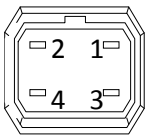
High definition (HD) lenses are recommended on the camera to utilize the full resolution of a megapixel camera. Installing a standard definition (SD) lens to a megapixel camera may exacerbate camera noises and possibly introduce traditional edge effects.

If a camera is exposed to harsh temperature environment (ex. diurnal temperature variations higher than ±10°C), condensation or thermal expansion are likely to occur in camera and lens parts, causing lens focus to shift time to time. Be advised to consider the environment condition impact when installing the device in a long term.



To mount a DC auto iris lens,

1. Place the lens mount to the camera and tighten the mount by turning clockwise.
2. Connect the lens cable to the 4-pin auto iris connector on the side of the camera. Refer to the figure above for more details about the connector.



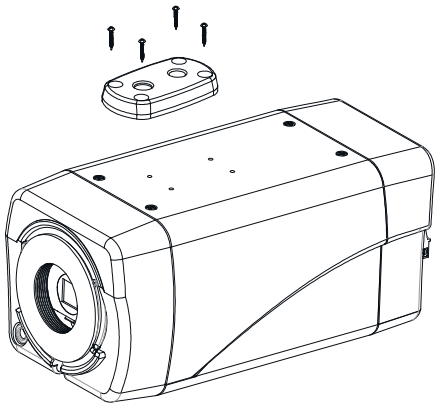
4 pin connector

PIN	DC Auto Iris Lens
1	Damp-
2	Damp+
3	Drive+_
4	Drive-

3. Manually adjust the zoom and focus of the image with the zoom lever and focus lever on the lens mount. (Refer to the manual provided with your lens.)

4.2. Installing the Mounting Adaptor

The provided mounting adaptor is designed for installing an IP camera device on a bracket or tripod. Tripod screw holes are available on both top and bottom of the camera. Refer to the following image for instruction.



Note

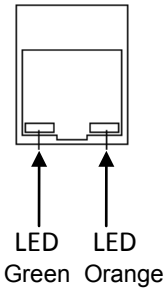
Mounting screws that are longer than 7mm may damage the camera's inside parts.

4.3. Connecting Cables

Connect the camera to the network and power by using a LAN cable (not supplied) and DC power adopter (supplied).

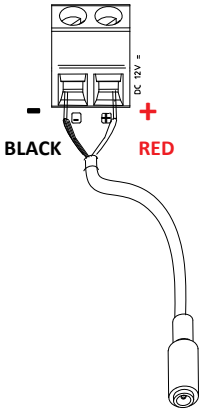
Network Connection

Use the Ethernet cable (RJ45) to connect the device to a hub or router in the network. When the LAN cable is connected, the orange LED light will become solid and green LED will blink every 250 millisecond.



Power Connection

The camera can be powered from either 12VDC or PoE. If the camera is powered via PoE, refer to ***Appendix (B). Power over Ethernet*** for more details. To operate your camera using 12VDC, make sure the polarity is correct before connecting the power cable. Incorrect connection may cause damages to the IP device.



Analog Video Out Connection

Use a 75 ohm video coaxial cable to connect to a monitor's analog video output and check the camera's connection and its image focus at the installation site. Be sure to press the output configuration button (PAL/NTSC button), located on the left side of the reset button to see the video. The factory default is 'no video output'; Press once to set the video to PAL, and press again to set the video to NTSC. Pressing the button again will go back to 'no video output' mode, disabling the viewing through the analog video connection.

Note

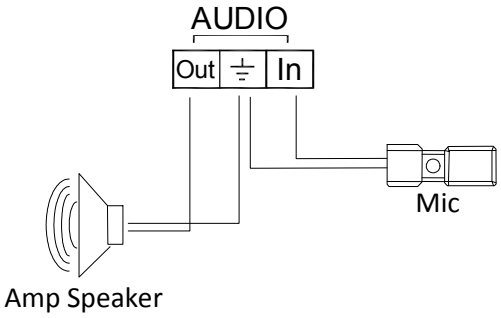
The video output configuration must be set before you connect the power cable. When changes get made while power cable is connected, users must restart the device to reflect the change. Once the PAL/NTSC button is pressed, the video display lasts for 3 minutes before it goes back to 'no video output' mode.

Note

Users cannot adjust the video brightness while connected through the analog video output. The brightness can be controlled only from a Web browser.

Audio connection

The camera provides a mono audio input and output. Due to low audio output power, an amplified speaker is recommended for enhanced sound. (Reframe from connecting a headphone or earphone directly to the camera.)



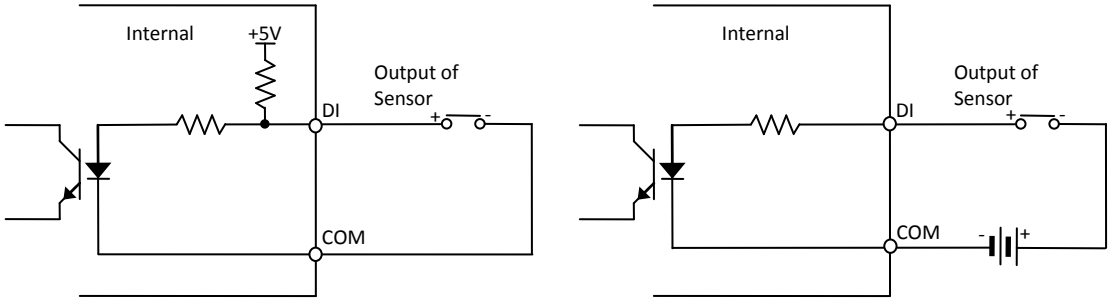
Sensor Input (D/I)

The camera provides 1 channel D/I. It can be connected to either a voltage type sensor or relay type sensor as the following figures. Settings can be done through the camera's configuration webpage.

Input voltage range: 0VDC minimum to 5VDC maximum, Max 50mA
Input voltage threshold: 1.5V

Caution

Do not exceed the maximum input voltage or relay rate.



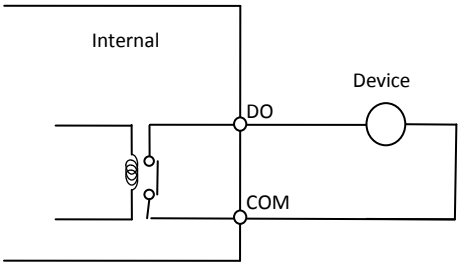
Relay Type Voltage Type

Alarm (DO) connection

Only the relay type is supported.
Relay Rating: Max 24VAC 500mA or 12VDC 1A

Caution

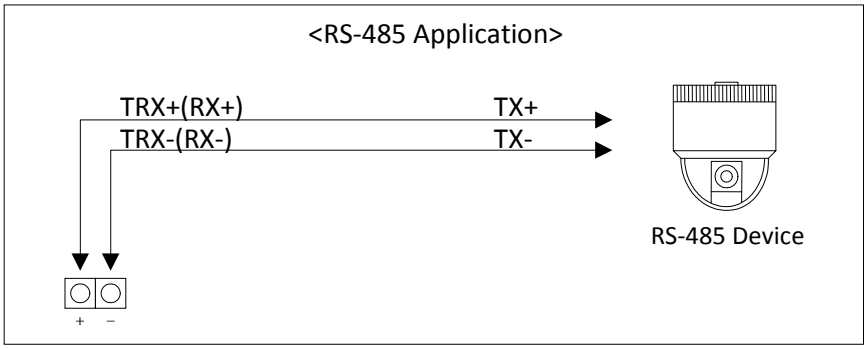
Do not exceed the maximum relay rating.



Relay Type

RS-485 Connection

The RS-485 serial port consists of TRX+(RX+) and TRX-(RX-) as following.



4.4. Setting the Image Attribute

Through the camera's webpage, users can configure image settings.
The menu of image attribute are available under Video Appearance menu in **Setup > Video & Audio > Camera**. The following features can be adjusted:

- Brightness
- Contrast
- Saturation
- Orientation

For more detailed information, refer to the provided 'Webpage User's Manual'.

5. CONFIGURATION

5.1. Set up network environment

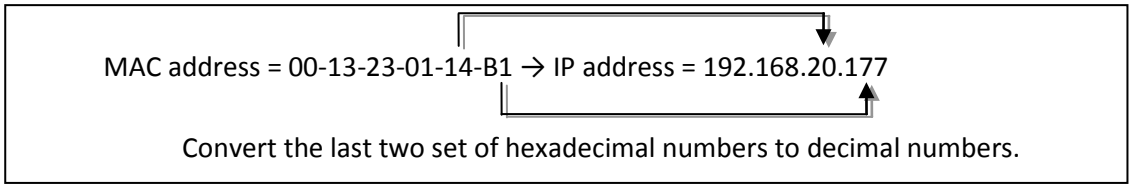
The default IP address of the device is 192.168.XXX.XXX. Users can identify the IP address of the device from converting the MAC address's hexadecimal numbers, which is attached to the device. Be sure that the device and PC are on a same area network before running the installation.

IP address : **192.168.xxx.xxx**
Subnet mask: **255.255.0.0**

5.1.1. Generic IP Environment

In case of generic private network environment where IP address 192.168.XXX.XXX are used, users may view the live streaming images on a web page using the device's default IP address:

1. Convert the device's MAC address to the IP address. Refer to the Hexadecimal-Decimal Conversion Chart at the end of the manual.
   (The MAC address of the device is attached on the side or bottom of the device.)



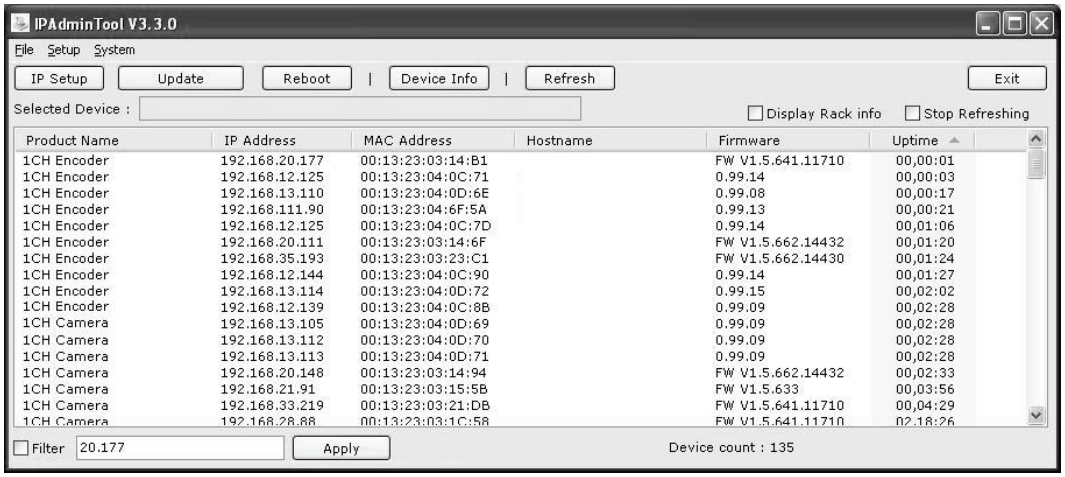
2. Start the Microsoft® Internet Explorer web browser and enter the address of the device.

3. Web streaming and device configurations are supported through ActiveX program. When the ActiveX installation window appears, authorize and install the ActiveX.

5.1.2. Custom IP Environment

IPAdminTool is provided with SDK at the following SDK path.
{SDK root}\BIN\TOOLS\AdminTool\

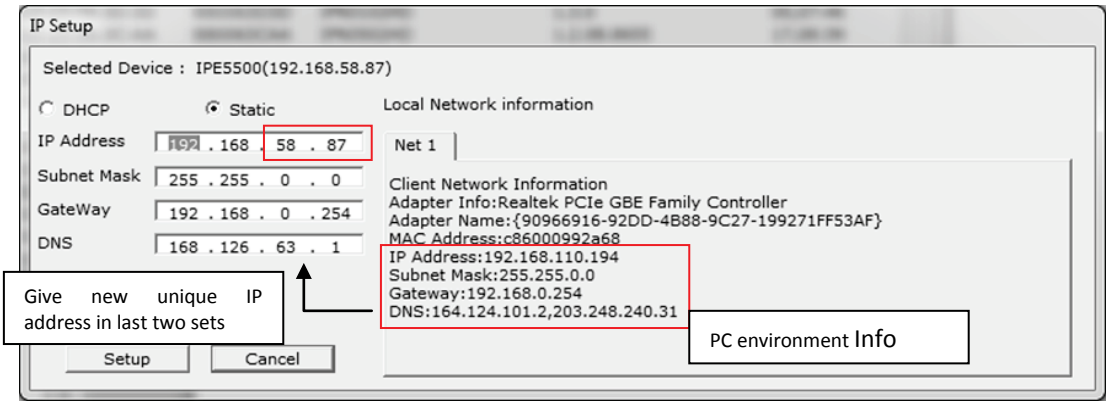
IPAdminTool is a management tool, which automatically scans all of the network products for users to perform administrative tasks, which includes network configurations, firmware update, device reboot, and device organizations.



To modify the device's default IP address for customized network area;

1. Find the device from the IPAdminTool's list and highlight the device's name.

2. Right-click the mouse and select "IP Address"; IP Setup window appears.

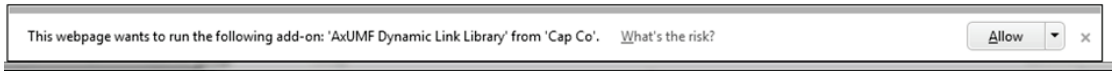


3. In the IP Setup's window, information under 'Local Network information' displays the user/PC's network area information. Those information need to be incorporated to the IP Address, Subnet Mask, Gateway, and DNS boxes, except the last 2 sets of IP Address, which are to be the unique numbers for the device. Refer to the image above for the setting

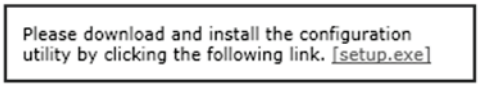
4. Click 'Setup' to complete the modification.

5.2. View video on web page

Type the proper IP address to view the live streaming images through a web browser.
The default username and password is *root / pass*.



1. The browser asks to install the ActiveX. Click Allow.



2. Setup.exe installation link or pop-up window appears, depends on Microsoft® Internet Explorer version. Proceed with rest of setup installation.

AxUMF Setup
Select install type
Select the installation type you want to perform.
You want to install ActiveX for all users of this computer. Click Next to continue. select install type...
Single User (Michael)
All users
Nullsoft Install System v2.46
Cancel
AxInstaller Setup
Internet Explorer must be closed completely to install AxInstaller.
Do you want to close all open windows of Internet Explorer?
Yes
No
AxUMF Setup
Completing the AxUMF Setup Wizard
AxUMF has been installed on your computer.
Click Finish to close this wizard.
< Back
Finish
Cancel

3. Follow the instructions of the dialog boxes and complete the installation. Once the installation is complete, start the web browser again and check if video stream is displayed in the main view frame.

Caution

If "*This software requires the Microsoft XML Parser V6 or higher. Please download MSXML6 from the Microsoft website to continue. Error code: Cannot create XMLDOMDocument.*" message appears, download and install the Microsoft Core XML Services (MSXML) 6.0.

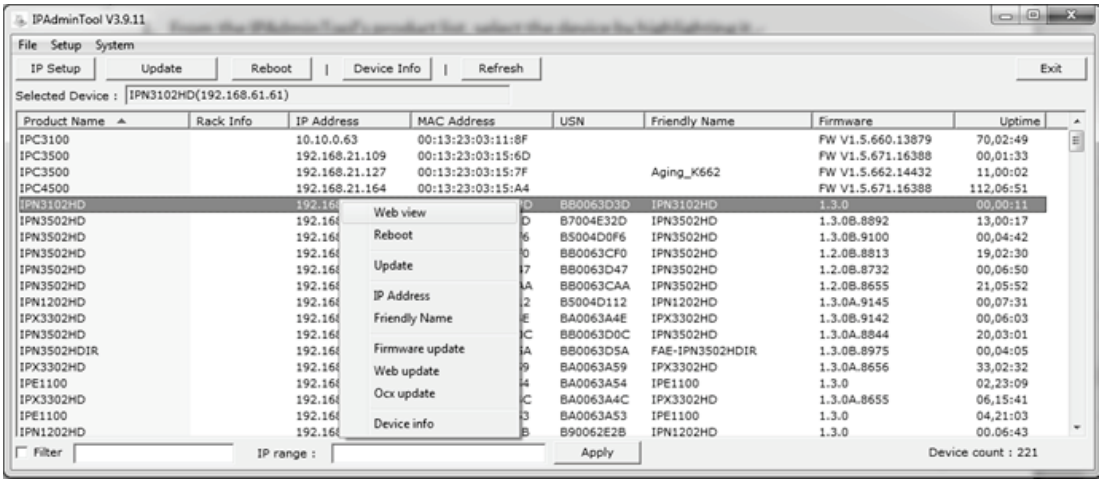
5.2.1. View video using IPAdmin Tool

IPAdminTool automatically searches all activated network encoders and IP cameras and shows the product name, IP address, MAC address and etc. IPAdminTool is provided with SDK at the following SDK path.

{SDK root}\BIN\TOOLS\AdminTool\

1. From the IPAdminTool's product list, select the device by highlighting it.

2. Right-click the mouse and select **Web view**



3. The system's default web browser opens the device's address.

Caution

Whether directly accessing the streaming video through typing IP address on a web page or taking steps through IPAdminTool, the ActiveX is needed to be installed for the Microsoft® Internet Explorer to have the complete configuration privileges.

5.3. Reset

To reboot the device, follow the steps below

1. Using a pointed object, press the reset button for 2~3 seconds.
2. Wait for the system to reboot.

5.4. Factory Default

To reset the device to the factory default settings, follow the steps below;

1. Access the device's webpage
2. From **Setup** page, go to **Maintenance > Reset All Settings**.
3. Press the '**Reset All Settings'** button. Click OK when popup message "*Do you want to reset all settings?*" appears.
4. After few seconds of loading, another popup message appears, asking the user to reboot the system. Click OK.
5. Click "Start Reboot" button and click "OK" when verification message appears.
6. Wait for the system to reboot.

The factory default settings are described as below:

IP address:	192.168.xx.yy
Network mask:	255.255.0.0
Gateway:	192.168.0.1
User ID:	root
Password:	pass

APPENDIX (A): SPECIFICATIONS

Summary

Camera Module	
Image Sensor	1/2.7” 1080p CMOS
Effective Pixels	1920 x 1080 (HD 1080p, 2M)
Scanning system	Progressive Scan
Lens (Optional)	3.1~8 mm, F1.2, Auto Iris
Day & Night	Removable IR Cut Filter
Video	
Compression Format	H.264, MPEG-4, MJPEG Selectable per Stream
Number of Streams	Dual Stream, Configurable
Resolution	1920x1080, 1280x720, 800x450, 480x270, 320x180
Compression FPS	25⁄30fps@1080p
Motion Detection	Built-in
Burnt-in Text (Digital)	Video stream overlay text
Output	Analog video output for installation only
Audio	
Input / Output	1/1 channel
Compression Format	G.711
Function	
Digital Input	1 channel
Digital Output	1 channel
RS-485	Support
Network	10/100 Base-T
Protocol	TCP/IP, UDP/IP, HTTP, RTSP, RTCP, RTP/UDP, RTP/TCP, SNTP, mDNS, UPnP, SMTP, SOCK, IGMP, DHCP, FTP, DDNS, SSL v2/v3, IEEE 802.1X, SSH, SNMP v2/v3
Power over Ethernet	Supported
USB 2.0	Support (Local storage, Wireless LAN)
SD Slot	Support (SD up to 32 GB)

Electrical Characteristics

Power Source	DC 12V / PoE IEEE802.3af compliant(Class 0)
Video Output	1 Vp-p, 75Ω, Composite
Audio Input	Linein, 1.43Vp-p(Min 1.35Vp-p, max 1.49 Vp-p), 39 KΩ
Audio Output	Lineout, 46mW Power, 16 Ω
D/I	Max 50mA@5VDC, 1.5V threshold
D/O	Max 500mA@24VAC or 1A@12VDC On-state resistance: 50 Ω (max continuous)

Environment Condition

Operating Temperature	DC12V : 0˚C ~ 50˚C (32˚F ~ 122˚F) PoE : 0˚C ~ 50 ˚C (32˚F ~ 122˚F)
Operating Humidity	Up to 85% RH

Mechanical Condition

Material	Aluminum Die Casting
Color	White
Dimension	71(W) x 64(H) x 140(D) mm
Weight (Approx)	1.2kg

APPENDIX (B): POWER OVER ETHERNET

The Power over Ethernet (PoE) is designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af Power-over-Ethernet (PoE) standard. The IEEE 802.3af-2003 standard allows up to 15.4 W power to device. However, 12.95W is the maximum available power, as some power gets lost in the cable.
PoE has advantages over conventional power in such places where AC powers cannot be reached or expensive to wire.
The device's power consumption is 5.28 W or 5.40W when the fan is on.

Note: For proper activation of 12V PoE, the Category 5 cable must be shorter than 140m and conform the PoE standard.

PoE compatibility

With non Power Sourcing Equipment (PSE)
When it is connected with non-PSE, the power adaptor should be used.

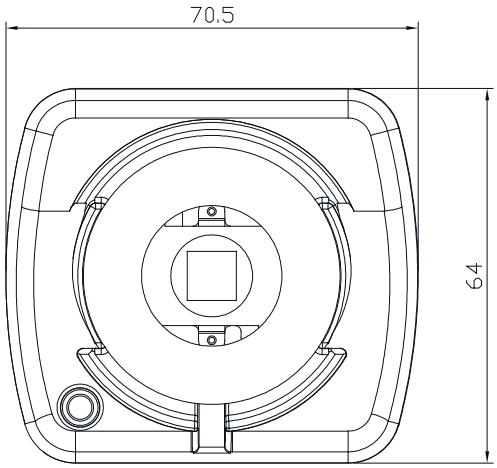
With power adaptor
Connecting both PSE and power adaptor do not cause any harms to the products. Disconnecting power adaptor while it is operating does not stop operation. The product continues to work without rebooting.

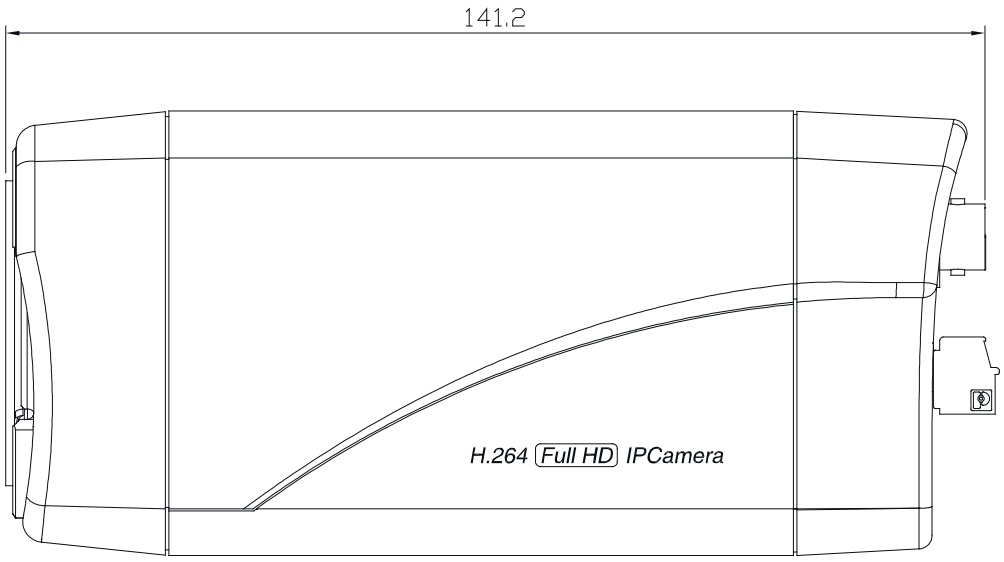
Power classification

The PoE Power Class supported by the IP device is Class 0.

Class	Usage	Minimum Power Levels Output at the PSE	Maximum Power Levels at the Powered Device
0	Default	15.4W	0.44 to 12.95W

APPENDIX (C): DIMENSIONS





UNIT: mm

APPENDIX (D): HEXADECIMAL-DECIMAL CONVERSION TABLE

Refer to the following table when converting the MAC address of the device to the IP address.

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
0	0	25	37	4A	74	6F	111	94	148	B9	185	DE	222
1	1	26	38	4B	75	70	112	95	149	BA	186	DF	223
2	2	27	39	4C	76	71	113	96	150	BB	187	E0	224
3	3	28	40	4D	77	72	114	97	151	BC	188	E1	225
4	4	29	41	4E	78	73	115	98	152	BD	189	E2	226
5	5	2A	42	4F	79	74	116	99	153	BE	190	E3	227
6	6	2B	43	50	80	75	117	9A	154	BF	191	E4	228
7	7	2C	44	51	81	76	118	9B	155	C0	192	E5	229
8	8	2D	45	52	82	77	119	9C	156	C1	193	E6	230
9	9	2E	46	53	83	78	120	9D	157	C2	194	E7	231
0A	10	2F	47	54	84	79	121	9E	158	C3	195	E8	232
0B	11	30	48	55	85	7A	122	9F	159	C4	196	E9	233
0C	12	31	49	56	86	7B	123	A0	160	C5	197	EA	234
0D	13	32	50	57	87	7C	124	A1	161	C6	198	EB	235
0E	14	33	51	58	88	7D	125	A2	162	C7	199	EC	236
0F	15	34	52	59	89	7E	126	A3	163	C8	200	ED	237
10	16	35	53	5A	90	7F	127	A4	164	C9	201	EE	238
11	17	36	54	5B	91	80	128	A5	165	CA	202	EF	239
12	18	37	55	5C	92	81	129	A6	166	CB	203	F0	240
13	19	38	56	5D	93	82	130	A7	167	CC	204	F1	241
14	20	39	57	5E	94	83	131	A8	168	CD	205	F2	242
15	21	3A	58	5F	95	84	132	A9	169	CE	206	F3	243
16	22	3B	59	60	96	85	133	AA	170	CF	207	F4	244
17	23	3C	60	61	97	86	134	AB	171	D0	208	F5	245
18	24	3D	61	62	98	87	135	AC	172	D1	209	F6	246
19	25	3E	62	63	99	88	136	AD	173	D2	210	F7	247
1A	26	3F	63	64	100	89	137	AE	174	D3	211	F8	248
1B	27	40	64	65	101	8A	138	AF	175	D4	212	F9	249
1C	28	41	65	66	102	8B	139	B0	176	D5	213	FA	250
1D	29	42	66	67	103	8C	140	B1	177	D6	214	FB	251
1E	30	43	67	68	104	8D	141	B2	178	D7	215	FC	252
1F	31	44	68	69	105	8E	142	B3	179	D8	216	FD	253
20	32	45	69	6A	106	8F	143	B4	180	D9	217	FE	254
21	33	46	70	6B	107	90	144	B5	181	DA	218	FF	255
22	34	47	71	6C	108	91	145	B6	182	DB	219		
23	35	48	72	6D	109	92	146	B7	183	DC	220		
24	36	49	73	6E	110	93	147	B8	184	DD	221		

REVISION HISTORY

MAN#	DATE(M/D/Y)	Comments
01A.01	03/30/2012	Created
01A.02	04/24/2012	Overall modification and device function verification
01A.03	05/03/2012	Configuration update